ABSTRACT OF THE DISCLOSURE

A system and method process non-linear image data, still or video, from a digital imager. Noise generated by analog-to-digital converters is filtered from a pixel of digital image data. Moreover, the effects of single pixel defects in the imager are eliminated by clamping a predetermined pixel of image data within the window when the value of the predetermined pixel is greater than a maximum value of the image data of neighboring pixels or less than a minimum value of the image data of neighboring pixels. Ripples in image data are reduced by eliminating the effects of single pixel defects before filtering for crosstalk caused by electrical crosstalk between sensor elements in an imager. Dark current is removed from image data generated by an imager by subtracting a fraction of a determined dark current value from all image data generated by the imager to compensate for nonlinearities in dark current across the imager. The image data is white balanced by creating a set of scalar color adjustments from determined average color values and constraining the set of scalar adjustments to plausible lighting conditions to prevent overcompensation on images having large regions of similar hue. Lastly, utilization of a fixed set of intensity levels is optimized by remapping and restreching the image data to create new luma values for each pixel.